Patent claims

4

8

12

16

20

- 1. Process for the removal of sour gas from pressurised natural gas which is polluted by sulphur compounds and other sour gas compounds,
 - the natural gas, which is to be desulphurised, being initially fed into a sour gas absorption unit, in which the sulphur components and any other components are absorbed by a physically acting solution,
 - the absorbate being heated,
 - the absorbate being fed into a high-pressure flash unit, in which the sour-gas-poor absorbent and desorbed sour gas contained in the resulting mixture are separated,
 - the desorbed sour gas being cooled and the vaporised absorbent being condensed out of the sour gas stream,
 - the sour-gas-poor absorbent from the high-pressure flash unit being freed from residual sour gas in a gas stripping unit by means of stripping gas, and
 - the absorbent obtained being cooled and recycled to the sour gas.
 absorption unit,
- characterised in that a pressure is set in the high-pressure flash unit that permits the desorbed sour gas to be condensed by means of cooling water or cooling air.
- Process according to claim 1,
 characterised in that the laden stripping gas obtained is cooled and fed to the sour gas absorption unit.
- 28 3. Process according to either of claims 1 or 2, characterised in that either purified feed gas or desulphurised natural gas is used as stripping gas.

32

- 4. Process according to either of claims 2 or 3, characterised in that the stripping gas is fed to the sour gas absorption unit simultaneously with the feed gas.
- Process according to any one of claims 1 to 4,
 characterised in that the absorbent contained in the desorbed sour gas is condensed and admixed to the absorbate prior to heating the absorbate.
 - 6. Process according to any one of claims 1 to 5, characterised in that the pressure of the absorbate to be heated is set to a pressure that is higher than that in the sour gas absorption unit.
 - 7. Process according to any one of claims 2 to 6, characterised in that the pressure of the stripping gas used is set to a pressure above that of the sour gas absorption unit and then fed into the sour gas absorption unit.
 - 8. Process according to any one of claims 1 to 7, characterised in that

4

12

16

20

24

- prior to being heated, the absorbate from the sour gas absorption unit is fed to a recycle flash unit, in which a partial pressure reduction takes place, and the absorbate and desorbed gas contained in the resulting mixture are separated, and
- the desorbed gas obtained in the recycle flash unit is recompressed and recycled to the sour gas absorption unit.
- 9. Process according to claim 8, characterised in that the pressure of the absorbate to be heated is set to a pressure that is higher than that in the recycle flash unit.

10.	Process according to either of claims 8 or 9,
	characterised in that the pressure in the high-pressure flash unit is
	higher than that in the recycle flash unit.

11. Process according to any one of claims 8 to 10, characterised in that the laden stripping gas and the gas obtained in the recycle flash unit are combined, re-compressed and fed to the sour gas absorption unit.

12. Process according to any one of the preceding claims 1 to 12, characterised in that the high-pressure flash unit consists of a cascade of several series-connected flash vessels preceded by partial pressure reduction and re-compression of the sour gases obtained from the downstream flash vessels to the pressure of the first flash vessel of the cascade.